



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/743,387

12/23/2003

Masahiko Matsukawa

21581-00314-US

7938

30678 7590 02/23/2007  
CONNOLLY BOVE LODGE & HUTZ LLP  
P.O. BOX 2207  
WILMINGTON, DE 19899-2207

EXAMINER

ZHENG, LOIS L

ART UNIT

PAPER NUMBER

1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

02/23/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/743,387

Applicant(s)

MATSUKAWA ET AL.

Examiner

Lois Zheng

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-5,8-11,15 and 17-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,8-11,15 and 17-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of Claims***

1. New claims 24-28 are added in view of the amendments filed 11 December 2006. Therefore, claims 1, 3-5, 8-11, 15 and 17-28 are currently under examination.

### ***Status of Previous Rejections***

2. Applicant's arguments, see pages 6-10, filed 11 December 2006, with respect to WO'399 in view of Carey et al. and further in view of Wada et al. have been fully considered and are persuasive. The rejection of claims 1,3-5,8,10-11,15 and 17-24 has been withdrawn.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made, to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-5, 8-11, 15, 17-24, 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bittner et al. WO 02/24344.

Since WO 02/24344 is in German, the examiner relies on the English equivalent teachings of US Patent Application Publication 2003/0185990 A1(Bittner) to establish proper rejection grounds.

Bittner teaches a method for pretreating metal surfaces, such as iron, aluminum and zinc(paragraph [0042]), comprising treating such a metal surface with a chemical

Art Unit: 1742

conversion coating comprising complex fluoride based on Ti and/or Zr in an amount of 0.1-15g/l(paragraph [0079]), silane, such as aminosilane, in an amount of 0.1-50g/l (paragraph [0084, 0087]), peroxide in an amount of 1-50g/l(paragraph [0117]), and zinc or copper ions(paragraph [0118]). Bittner further teaches that the pH of the coating solution is from 1-11(paragraph [0199]).

Regarding claims 1,3-5, 8, 10-11, 15, 17-24, the concentrations of Ti and/or Zr, aminosilane, peroxide accelerator and the pH value in the coating solution of Bittner overlap the claimed concentration ranges of Ti and/or Zr, aminosilane, peroxide accelerator and the pH value. Therefore, a prima facie case of obviousness exists. See MPEP2144.05. The selection of claimed Ti and/or Zr, aminosilane, peroxide accelerator concentration ranges and the pH value range from the disclosed ranges of Bittner would have been obvious to one of ordinary skill in the art since Bittner teaches the same utilities in its disclosed Ti and/or Zr, aminosilane, peroxide accelerator concentration ranges and the pH value range.

Regarding claims 26 and 28, since presence of phosphate ions is not mandatory in the coating solution of Bittner, the examiner concludes that Bittner's coating solution is substantially free of phosphate ions as claimed based on the broadest reasonable interpretation.

5. Claims 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bittner, and further in view of Kogure US 4,130,431 A(Kogure).

The teachings of Bittner are discussed in paragraph 4 above. Bittner further teaches that the coating solution can be applied by spraying or dipping(paragraph

Art Unit: 1742

[0205]. However, Bittner does not explicitly teach that the coating solution can be applied by claimed cationic electrocoating method.

Kogure teaches applying a zirconium, titanium containing acid coating solution to metal surfaces for rust prevention(title, abstract). Kogure further teaches that the coating solution can be applied by spraying, dipping or electrodeposition(col. 4 lines 12-13).

Regarding claims 25 and 27, it would have been obvious to one of ordinary skill in the art to have applied the coating solution of Bittner to metal surfaces via electrodeposition instead of spraying or dipping with expected success since Kogure teaches that electrodeposition, spraying and dipping are functionally equivalent methods to apply a conversion coating solution.

In addition, one of ordinary skill in the art would have found it obvious to have applied the coating solution of Bittner in view of Kogure via cationic electrocoating with expected success since cationic electrocoating is a variation of electrodeposition.

6. Claims 1, 4-5, 11 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rodzewich et al. US 2004/0094235 A1(Rodzewich).

Rodzewich teaches a method to apply a surface treatment solution to metal surfaces such as aluminum(title), wherein the treatment solution comprises aminosilane in the amount of about 50 to about 500ppm(paragraphs [0011]) and fluoacid of zirconium and titanium in an amount of 200-1400ppml(paragraph [0014, 0023]). Rodzewich further teaches that pH of the coating solution is preferably about 1-3 (paragraph [0016]).

Art Unit: 1742

Regarding claims 1 and 4, the concentrations of Ti and/or Zr, aminosilane as taught by Rodzewich read on the claimed Ti, Zr, aminosilane concentrations. The pH value in the coating solution of Rodzewich overlap the claimed pH value range. Therefore, a prima facie case of obviousness exists. See MPEP2144.05. The selection of claimed pH value range from the disclosed range of Rodzewich would have been obvious to one of ordinary skill in the art since Rodzewich teaches the same utilities in its disclosed pH value range.

Regarding claims 5 and 11, even though Rodzewich does not explicitly teach the claimed zinc, aluminum ions in the coating solution, one of ordinary skill in the art would have found the claimed zinc or aluminum ion presence obvious in the coating solution of Rodzewich since the zinc or aluminum from the metal substrate would have provided some zinc or aluminum ions to the coating solution.

Regarding claim 26, since presence of phosphate ions is not mandatory in the coating solution of Rodzewich, the examiner concludes that Rodzewich's coating solution is substantially free of phosphate ions as claimed based on the broadest reasonable interpretation.

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rodzewich, and further in view of Kogure.

The teachings of Rodzewich are discussed in paragraph 6 above. Rodzewich further teaches that the coating solution can be applied by spraying or immersion (abstract). However, Rodzewich does not explicitly teach that the coating solution can be applied by claimed cationic electrocoating method.

Kogure teaches applying a zirconium, titanium containing acid coating solution to metal surfaces for rust prevention(title, abstract). Kogure further teaches that the coating solution can be applied by spraying, dipping or electrodeposition(col. 4 lines 12-13).

Regarding claim 25, it would have been obvious to one of ordinary skill in the art to have applied the coating solution of Rodzewich to metal surfaces via electrodeposition instead of spraying or dipping with expected success since Kogure teaches that electrodeposition, spraying and dipping are functionally equivalent methods to apply a conversion coating solution.

In addition, one of ordinary skill in the art would have found it obvious to have applied the coating solution of Rodzewich in view of Kogure via cationic electrocoating with expected success since cationic electrocoating is a variation of electrodeposition.

8. Claims 3, 8, 10, 15, 17-24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rodzewich et al. US 2004/0094235 A1(Rodzewich) in view of Claffey et al. US 2003/0221751 A1(Claffey).

The teachings of Rodzewich are discussed in paragraph 6 above. However, Rodzewich does not explicitly teach the claimed accelerator. Rodzewich also does not teach that the metal substrate is an iron substrate as claimed.

Claffey teaches a zirconium, titanium based fluoride compound containing conversion coating solution suitable for the treatment of metal surfaces such as iron and aluminum(abstract, paragraph [0009, 0011]).

Regarding claims 17 and 19, since Claffey teaches that a zirconium, titanium and fluoride containing conversion coating can be applied to both aluminum and iron surfaces, one of ordinary skill in the art would have found it obvious to have applied the coating solution of Rodzewich to iron surfaces with expected success. The remaining limitations as recited in claims 17, 19 and 28 are rejected for the same reasons as stated in the rejection of claims 1 and 4 above.

Regarding claims 3 and 18, Claffey further teaches adding accelerators, such as chlorates, bromates, perchlorates, chlorites, nitrites, in an amount of about 0.01 to about 3% to the coating solution(paragraph [0025]).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the accelerators in the amount of about 0.01 to about 3% as taught by Claffey into the coating solution of Rodzewich in order to increase the rate of coating deposition as taught by Claffey(paragraph [0025]).

Regarding claims 8 and 21, the instant claims are rejected for the same reasons as stated in the rejection of claims 4 and 19 above.

Regarding claims 10, 15, 20 and 22-24, the instant claims are rejected for the same reasons as stated in the rejection of claim 5 above.

Regarding claim 28, the instant claim is rejected for the same reasons as stated in the rejection of claim 26 above.

9. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rodzewich in view of Claffey, and further in view of Kogure.



The teachings of Rodzewich in view of Claffey are discussed in paragraph 8 above. Rodzewich further teaches that the coating solution can be applied by spraying or immersion (abstract). However, Rodzewich in view of Claffey do not explicitly teach that the coating solution can be applied by claimed cationic electrocoating method.

Kogure teaches applying a zirconium, titanium containing acid coating solution to metal surfaces for rust prevention(title, abstract). Kogure further teaches that the coating solution can be applied by spraying, dipping or electrodeposition(col. 4 lines 12-13).

Regarding claim 25, it would have been obvious to one of ordinary skill in the art to have applied the coating solution of Rodzewich in view of Claffey to metal surfaces via electrodeposition instead of spraying or dipping with expected success since Kogure teaches that electrodeposition, spraying and dipping are functionally equivalent methods to apply a conversion coating solution.

In addition, one of ordinary skill in the art would have found it obvious to have applied the coating solution of Rodzewich in view of Claffey and Kogure via cationic electrocoating with expected success since cationic electrocoating is a variation of electrodeposition.

### ***Response to Arguments***

10. Applicant's arguments filed 11 December 2006 have been considered but are moot in view of the new ground(s) of rejection.

11. The declaration under 37 CFR 1.132 filed 16 March 2006 is insufficient to demonstrate the criticality of the claimed Zr/Ti and aminosilane concentration ranges

Art Unit: 1742

because: None of the test solutions are conducted showing coating compositions close to the claimed upper and lower concentration ranges, therefore, are not commensurate with the scope of the invention and are not sufficient to show criticality of the claimed concentration ranges.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LLZ

ROY KING  
SUPERVISOR  
R-K